Campylobacteriosis *(Campylobacter spp)*

1) THE DISEASE AND ITS EPIDEMIOLOGY

A. Etiologic Agent

Campylobacter jejuni (*C. jejuni*) is the usual cause of campylobacteriosis, with only 1% of cases caused by other species.

B. Clinical Description and Laboratory Diagnosis

The most common symptoms of campylobacteriosis are diarrhea (bloody in 30% of cases), abdominal pain, malaise, fever, nausea, and sometimes vomiting. Infection can cause a spectrum of disease ranging from mild, uncomplicated gastroenteritis to fulminant disease that mimics acute appendicitis. Asymptomatic infections also occur. The illness is usually over within a week but may be prolonged in some individuals and can sometimes relapse. Long-term complications include reactive arthritis and Guillain-Barré syndrome. It is estimated that approximately 1 in every 1000 reported campylobacteriosis cases leads to Guillain-Barré syndrome, and as many as 40% of Guillain-Barré syndrome cases in this country are triggered by campylobacteriosis (please see chapter on GBS for more information). Systemic infection with *Campylobacter* can lead to sepsis, endocarditis or meningitis.

Laboratory diagnosis is based on isolation of the organisms from stool. A presumptive diagnosis can be made by visualization of motile, curved microorganisms.

C. Reservoirs

Campylobacter bacteria are endemic in animals, notably cattle and poultry, although swine, sheep, and even pets such as birds, kittens and puppies may be sources of human infection. A very large percentage of raw poultry is contaminated with *C. jejuni*.

D. Modes of Transmission

Campylobacter is transmitted via the fecal-oral route. The most common mode of transmission is ingestion of food or water that has been contaminated with human or animal feces. This includes raw and undercooked poultry or pork, inadequately treated drinking water, and raw milk and raw milk products. However, any food contaminated with the bacteria can be a source of infection. In addition, farm animals and pets, such as puppies with diarrhea, can be sources of infection. Person-to-person spread can also occasionally occur, especially among household contacts, pre-school children in daycare, the elderly, and developmentally disabled persons living in residential facilities. Transmission can also occur through certain types of sexual contact (*e.g.*, oral-anal contact). A large dose of organisms is usually needed to cause infection, but the infectious dose may be lower for certain susceptible groups such as children, the elderly and the immunocompromised.

E. Incubation Period

The incubation period can vary from 1 to 10 days but is usually about 2 to 5 days.

F. Period of Communicability or Infectious Period

The disease is communicable for as long as infected persons excrete *Campylobacter* bacteria in their stool. This can occur from days to several weeks. People who are not given antibiotics have been known to shed these bacteria for as long as seven weeks.

G. Epidemiology

Campylobacter is the most common bacterial cause of diarrheal illness in the United States, surpassing salmonella in most studies. It is estimated that 2.5 million cases occur annually with almost all cases occurring as isolated, sporadic events. Although outbreaks due to this organism have occurred, they are uncommon. Children and young adults have the highest incidence of infection, and although *Campylobacter* does not commonly cause death, it has been estimated that approximately 500 persons with *Campylobacter* infections may die each year. In New Jersey, about 570 cases of campylobacteriosis are reported every year to NJDHSS.

2) REPORTING CRITERIA AND LABORATORY TESTING SERVICES

A. New Jersey Department of Health and Senior Services (NJDHSS) Case Definition

Case Classification

A. Confirmed

Isolation of *Campylobacter spp.* from any site in the human body regardless of symptoms.

B. Probable

A clinically compatible case epidemiologically linked to a confirmed case as determined by NJDHSS.

C. Possible

Not used.

B. Laboratory Testing Services Available

The Public Health and Environmental Laboratories (PHEL) will test stool specimens for the presence of *Campylobacter* and will confirm and speciate isolates from clinical specimens. Call the Enteric Laboratory at 609.290.7368 for more information.

3) DISEASE REPORTING AND CASE INVESTIGATION

A. Purpose of Surveillance and Reporting

- To identify whether the case may be a source of infection for other persons (*e.g.*, a diapered child, daycare attendee or foodhandler) and, if so, to prevent further transmission.
- To identify transmission sources of major public health concern (*e.g.*, a restaurant or commercially distributed food product) and to stop transmission from such sources.

B. Laboratory and Healthcare Provider Reporting Requirements

The New Jersey Administrative Code (N.J.A.C. 8:57-1.8) stipulates that laboratories report (by telephone, confidential fax, over the Internet using the Communicable Disease Reporting System [CDRS] or in writing) all cases of campylobacteriosis to the local health officer having jurisdiction over the locality in which the patient lives, or, if unknown, to the health officer in whose jurisdiction the health care provider requesting the laboratory examination is located. The health care providers must report all cases of campylobacteriosis to the local health officer having jurisdiction over the locality in which the patient lives.

C. Health Officer's Reporting and Follow-Up Responsibilities

Reporting Requirements

The New Jersey Administrative Code (N.J.A.C. 8:57-1.8) stipulates that each local health officer must report the occurrence of any case of campylobacteriosis, as defined by the reporting criteria in Section 2 A above.

Current requirements are that cases be reported to the NJDHSS Infectious and Zoonotic Diseases Program (IZDP) using a CDS-1 form. A report can be filed electronically over the Internet using the confidential and secure Communicable Disease Reporting System (CDRS).

1. **Case Investigation**
   a. It is the responsibility of the local health officer to complete a CDS-1 form by interviewing the patient and others who may be able to provide information. Much of the information required on the form can be obtained from the patient's healthcare provider or the medical record.
   b. Use the following guidelines to complete the form:
      1) Accurately record the demographic information, date of symptom onset, symptoms, and medical information.
      2) When asking about exposure history (food, travel, activities, etc.), use the incubation period range for *Campylobacter* (1–10 days). Specifically, focus on the period beginning a minimum of 1 day prior to the patient's onset date back to no more than 10 days before onset. If possible, record any restaurants at which the patient ate, including food item(s) and date consumed. Ask questions about travel history and outdoor activities to help identify where the patient became infected.
      3) Ask questions about water sources and contact because *Campylobacter* may be acquired through water consumption.
      4) Ask questions about household/close contact, pet or other animal contact.
      5) Ask questions about travel history and outdoor activities to help identify where the case-patient became infected.
      6) Determine whether the case-patient attends or works at a daycare facility and/or is a foodhandler.
      7) If there have been several unsuccessful attempts to obtain patient information (*e.g.*, the patient or healthcare provider does not return calls or respond to a letter, or the patient refuses to divulge information or is too ill to be interviewed), please fill out the form with as much information as possible. Please note on the form the reason why it could not be filled out completely. **If CDRS is used to report, enter the collected information into the "Comments" section.**

After completing the form, attach lab report(s) and mail (in an envelope marked "Confidential") to the NJDHSS IZDP, or the report can be filed electronically over the Internet using the confidential and secure CDRS. The mailing address is:

NJDHSS
Division of Epidemiology, Environmental and Occupational Health
Infectious and Zoonotic Diseases Program
P.O.Box 369
Trenton, NJ 08625-0369

   c. Institution of disease control measures is an integral part of case investigation. It is the local health officer's responsibility to understand, and, if necessary, institute the control guidelines listed below in Section 4, "Controlling Further Spread."

4) CONTROLLING FURTHER SPREAD

A. Isolation and Quarantine Requirements (N.J.A.C. 8:57-1.12)

Minimum Period of Isolation of Patient
Foodhandlers with *Campylobacter* are to be excluded from work. After diarrhea has resolved, foodhandlers may only return to work after producing **one (1)** negative stool specimen. If a case has been treated with an antimicrobial, the stool specimen shall not be submitted until at least 48 hours after completion of therapy. In

outbreak circumstances, a second consecutive negative stool specimen (submitted no less than 24 hours apart) will be required prior to returning to work.

Minimum Period of Quarantine of Contacts
Contacts with diarrhea who are foodhandling facility employees shall be considered the same as a case-patient and handled in the same fashion. No restrictions otherwise.

Note: A foodhandler is any person directly preparing or handling food. This can include a patient care or child care provider.

B. Protection of Contacts of a Case

None.

C. Managing Special Situations

Daycare
Since campylobacteriosis may be transmitted person-to-person through fecal-oral transmission, it is important to follow up on cases of campylobacteriosis in a daycare setting carefully. General recommendations include:

- Children or staff member with *Campylobacter* infection who have diarrhea should be excluded until their diarrhea has resolved.
- Children with *Campylobacter* infection who have no diarrhea and are not otherwise ill may remain in the program if special precautions are taken.
- Since most staff in child care programs are considered foodhandlers, those with *Campylobacter* in their stools (symptomatic or not) can remain on site, but must not prepare food or feed children until their diarrhea has resolved and they have **one (1)** negative stool test (submitted at least 48 hours after completion of antibiotic therapy, if antibiotics are given).

School
Since campylobacteriosis may be transmitted person-to-person through fecal-oral transmission, it is important to follow up on cases of *Campylobacter* in a school setting carefully. General recommendations include:

- Students or staff with *Campylobacter* infection who have diarrhea should be excluded until their diarrhea has resolved.
- Students or staff with *Campylobacter* who do not handle food, have no diarrhea or have mild diarrhea and are not otherwise sick, may remain in school if special precautions are taken.
- Students or staff who handle food and have *Campylobacter* infection (symptomatic or not) must not prepare food until their diarrhea is gone and they have **one (1)** negative stool test (submitted at least 48 hours after completion of antibiotic therapy, if antibiotics are given).

Community Residential Programs
Actions taken in response to a case of campylobacteriosis infection in a community residential program will depend on the type of program and the level of functioning of the residents. In addition to reporting the outbreak to the Local Health Department, facility management should also report any such outbreak to the Division of Long-Term Care Compliance and Surveillance Program, Department of Health and Senior Services, by phone at 1.800.792.9770 or fax 609.633.9060. A written report should be mailed within 72 hours to the NJDHSS, LTC Compliance and Surveillance Program, P.O. Box 367, Trenton, NJ 08625. The NJDHSS considers an event to be an "outbreak" if the infectious disease affects 10% of the population, either on a floor, a unit or total capacity of the facility, or three (3) cases of similar symptoms within the past 48 –hour period.

In long-term care facilities, residents with campylobacteriosis should be placed on standard (including enteric) precautions until their symptoms subside and they have **one (1)** negative stool culture for *Campylobacter.* Staff members who give direct patient care (*e.g.*, feed patients, give mouth or denture care or give medications) are considered foodhandlers and are subject to foodhandler restrictions, (see Section 4 A above). In addition, staff

members with *Campylobacter* infection who are not foodhandlers should not work until their diarrhea has resolved.

In residential facilities for the developmentally disabled, staff and clients with campylobacteriosis must refrain from handling or preparing food for other residents until their diarrhea has subsided and they have **one (1)** negative stool test for *Campylobacter* (submitted at least 48 hours after completion of antibiotic therapy, if antibiotics are given). In addition, staff members with *Campylobacter* infection who are not foodhandlers should not work until their diarrhea is resolved.

Reported Incidence Is Higher than Usual/Outbreak Suspected

If the number of reported cases of campylobacteriosis in city/town is higher than usual, or if an outbreak is suspected investigate to determine the source of infection and mode of transmission. A common vehicle, such as water, food or association with a daycare center, should be sought and applicable preventive or control measures should be instituted. If food is a suspected source of infection, use of the Patient Food History Listing, Patient Symptoms Line Listing, and Food-Specific Attack Rate Worksheet forms, to facilitate recording additional information. Control of person-to-person transmission requires special emphasis on personal cleanliness and sanitary disposal of feces. Consult with the NJDHSS IZDP at (609.588.7500). The Program staff can help determine a course of action to prevent further cases and perform surveillance for cases that may cross several jurisdictions and therefore be difficult to identify at a local level.

D. Preventive Measures

Environmental Measures

Implicated food items must be removed from the environment. A decision about testing implicated food items can be made in consultation with the IZDP and Food and Drug Safety Program (FDSP). The FDSP can help coordinate pickup and testing of food samples. If a commercial product is suspected, FDSP will coordinate follow-up with relevant outside agencies. FDSP may be reached at 609.588.3123.

Note: The role of the FDSP is to provide policy and technical assistance with the environmental investigation such as interpreting the New Jersey Food Code, conducting a hazardous analysis and critical control points (HACCP) risk assessment, initiating enforcement actions and collecting food samples.

The general policy of the PHEL is only to test food samples implicated in suspected outbreaks, not in single cases (except when botulism is suspected). The health officer may suggest that the holders of food implicated in single case incidents locate a private laboratory that will test food or store the food in their freezer for a period of time in case additional reports are received. However, a single, confirmed case with leftover food consumed within the incubation period may be considered for testing.

Personal Preventive Measures/Education

To avoid future exposures, recommend that individuals:

- Always wash their hands thoroughly with soap and water before eating or preparing food, after using the toilet, after changing diapers, and after touching their pets or other animals.
- After changing diapers, wash the child's hands as well as their own.
- In a daycare setting, dispose of feces in a sanitary manner.
- When caring for individuals with diarrhea, scrub their hands with plenty of soap and water after cleaning the bathroom, helping the persons use the toilet, or changing diapers, soiled clothing or soiled sheets.
- Wash fruits and vegetables thoroughly, especially those that will not be cooked.
- Avoid letting infants or young children come into contact with pets that are sick with diarrhea, especially puppies and kittens.
- Make sure to cook all food products from animals thoroughly, especially poultry products, and avoid consuming raw eggs or cracked eggs, unpasteurized milk, or other unpasteurized dairy products.

- Avoid sexual practices that may permit fecal-oral transmission. Latex barrier protection should be emphasized as a way to prevent the spread of campylobacteriosis to a case's sexual partners, as well as being a way to prevent the exposure to and transmission of other pathogens.

ADDITIONAL INFORMATION

A ***Campylobacteriosis Fact Sheet*** can be obtained through the NJDHSS website at <www.state.nj.us/health>.

The formal CDC surveillance case definition for campylobacteriosis is the same as the criteria outlined in Section 2 A of this chapter. CDC case definitions are used by state health departments and CDC to maintain uniform standards for national reporting. When reporting a case to the NJDHSS, always refer to the criteria in Section 2 A.

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